



STATISTICS DIRECTORATE

STD/NA(2001)8
For Official Use

National Accounts

INTRODUCTION OF THE EURO IN OECD STATISTICS

OECD, PARIS- France

Agenda item 3

OECD MEETING OF NATIONAL ACCOUNTS EXPERTS
Château de la Muette, Paris
9-12 October 2001
Beginning at 9:30 a.m. on the first day

English - Or. English

JT00112587

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

TABLE OF CONTENTS

Background	3
1. Presentation of national data	3
2. Aggregation and comparison across countries	6
appendix: a small glossary	10

Boxes

Example: Implicit deflator for the Euro area.....	7
---	---

INTRODUCTION OF THE EURO IN OECD STATISTICS

Background

In January 2001, a small group was set up at OECD to take a closer look at the implications of the introduction of the euro in 2002 for statistical work at the OECD. The group met on several occasions to identify issues and to provide some responses. Two main issues arise in this context: (a) the presentation of national data of EMU member countries in OECD publications and databases; (b) the aggregation of national data to totals for the euro area.

The present summarises the conclusions of the task force regarding the two issues. As will be shown, issue (a) can be dealt with fairly concisely, issue (b) raises more general questions about the calculation of zone totals. It gives rise to a more broad-based discussion of aggregation issues across countries, developed in greater detail in a more technical discussion paper that is available on request¹.

1. Presentation of national data

As from 2002, EMU member countries will start reporting national statistical data in euro (EUR). Consequently, EUR-denominated series will be transmitted to OECD and other international organisations. For national statistical offices as well as for OECD the question arises how to present time series of data that cover years prior to a country's accession to the EMU. There are at least three possibilities:

Maintaining the national currency denomination over time. This option implies that data are expressed in the legacy national currency (e.g., DEM, FRF) up to and including 1998 (2000 in the case of Greece) and in EUR thereafter. While this solution is an exact presentation of events and preserves historical series, it has the obvious disadvantage of a break in series between 1998 and 1999 where the currency denomination switches between the original national currency and the EUR..

Conversion into a common international currency. A second option consists of expressing national data for years prior to 1999 in ECU, the precursor currency to the EUR. There are, however, several disadvantages to this option. First, when time-varying conversion rates from the national currency to the ECU are applied, this will change the time profile of historical statistics. For example, the rate of change of nominal GDP in the years up to 1999 would change when expressed in ECUs compared to the original national denomination. Second, depending on the variable converted, different rates of conversion to the ECU would have to be applied. For example, it may not be useful to convert national variables at constant prices to ECUs by applying a time-varying exchange rate. This need to discriminate between different types of conversion further complicates things. As a rule, national statistical offices will therefore not use this approach to present national time series.

1 . For a draft copy, please contact Schreyer.Paul@OECD.org.

This is different for *Eurostat*, which has adopted the solution of keeping data prior to 1999 in ECU and data from 1999 onwards in EUR.

Conversion into '1999 euro'. The third option for presenting national time series for years prior to 1999 is to convert the data in national denomination into 'national euro' by applying the irrevocable conversion rate between the national currency and the EUR (as for example, established on January 1st 1999 for the EU-11 countries). This procedure has the significant advantage of preserving the evolution over time of all historical national series – conversion back and forth is easily carried out by multiplication with a fixed coefficient. Also, current and constant price data can be treated without distinction. Many national statistical offices favour this option.

While simple and useful (since growth rates are preserved), the results are susceptible to misinterpretation when national and international currencies are not well distinguished. More precisely, a conversion of national data to euro for pre-EMU years (typically before 1999) by applying the irrevocable conversion rate is conceptually equivalent to changing the denomination of the *national currency*. Applying the fixed coefficient *does not* transform a national into an international currency. Rather, the operation is like a national currency reform, akin to the introduction of the new French Franc or the New Mexican Peso. What is generated for the observations prior to 1999, therefore, is a 'national euro', not an international one. An important consequence is that data of different EMU members expressed in 'national euro' **must not normally be added** across countries. Generating Euro area totals on the basis of fixed conversion rates for observations regarding the years prior to 1999 is only a valid option under very specific circumstances and otherwise has little, if any economic meaning.

Presentation of national data: conclusion and recommendation of the Task Force

1. For purposes of presenting ‘national data’, i.e., with a view to analysing economic developments from the perspective of an individual country, it is recommended that the irrevocable EUR/national currency conversion rate be applied to data relating to years prior to 1999. This applies to each of the EMU countries and to databases as well as publications.

2. For presentational purposes, and to distinguish the so-obtained euro denomination of the national currency from a true conversion into an international currency, the group recommends the formula²:

‘[year of accession] [ISO currency code] euro’

e.g., ***1999 FRF euro.***

3. Similar reasoning applies to the presentation of national data for the 12th EMU member, Greece. Here, the year 2001 marks the transition from the ‘national’ to the ‘international’ euro. The denomination for historical series would be ‘2001 GRD euro’. This can be extended to future new member countries, as the need arises.

4. Where appropriate, the following standard note (or parts thereof, pending space) can be applied to explain the above label: “Data prior to entry into EMU have been converted from the former national currency using the appropriate irrevocable conversion rate. The presentation facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euro are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.”

5. In publications with tables that stretch across the accession date of EMU member countries, and thereby comprise both pre-accession data in the original national currency converted with the irrevocable conversion rate and post-accession data in true EUR, these tables should be entitled:

‘[year of accession] [ISO currency code] euro’, euro from [year of accession]

e.g., ***1999 FRF euro, euro from 1999 or***

EUR ([year of accession] [ISO currency code] euro)

e.g., ***euro (1999 FRF euro)***

6. From ***January 15, 2002 onwards***, OECD statistical publications and databases will use the EUR or the ‘1999/2001 [ISO code] euro’ as the currency unit for individual EU12 countries.

2. This is also in line with the conclusion reached in a note to the 16th Meeting of the Eurostat Committee on Monetary, Financial and Balance of Payment Statistics: Lequiller, Francois (1998), *Conversion rates for historical series*.

2. Aggregation and comparison across countries

The following paragraphs provide a brief discussion of issues of international aggregation. A more technical exposition can be found in the companion document mentioned in the introduction. Three distinctions are important when discussing approaches towards international aggregation. They are discussed in turn.

Current and constant exchange rates (or international prices). At the national level, current price (value) data can typically be de-composed into a volume (or quantity) series and price series. At the international level, a second 'price' component enters the picture in the form of a conversion rate from the domestic to a common currency. The implication is that values can be expressed at current market exchange rates (or current international prices, if purchasing power parities - *PPPs* - are used); and at constant exchange rates (or constant international prices). For example, the rate of growth of nominal GDP in the euro area can be expressed as a weighted average of each Member country's nominal GDP growth in its domestic currency. Or it can be expressed as a weighted average of each country's GDP growth expressed in a common international currency. For the euro area, this distinction is without consequences for the years 1999 and onwards: the common international currency (the EUR) is at the same time each country's national currency. But the distinction is relevant for years prior to 1999 when bilateral exchange rates of euro area countries were not fixed. Whether comparisons should be based on current or constant exchange rates (or PPPs), depends on the question to be addressed by the indicator. For example, a measure of *domestic* inflation in the euro area should *not* be based on current exchange rates: to express the rate of price change in the euro area as a weighted average of the rates of price change in individual countries, exchange rate effects should be excluded. A different argument could apply for trade flows or balance of payment aggregates which analysts may want to examine in current as well as on constant exchange rates or PPPs.

Note that the distinction between using current or constant exchange rates is only relevant when aggregating current-price national data across countries. In the case of volume aggregates, only a conversion with constant exchange rates (or international prices) would appear to give rise to a meaningful interpretation.

Chained or direct comparisons. The second issue arises from two distinct possibilities of comparing economic series over time. One approach is to carry out a year-by-year comparison, and constructing rates of change from one year to the next (chained indices)³. Another approach⁴ is to define a fixed base or reference year and to compare all other observations directly with this single base year. In the process of aggregation across countries, using a fixed weight index implies that exchange rates or PPPs are held fixed and the weights by which components enter the index, remain unaffected from exchange rate movements. The advantage of this method lies in the fact that only movements of components are picked up in the overall index, and not movements of weights. For example, a euro area aggregate of GDP growth under a fixed weight index would exclusively reflect the movements of each member country's GDP. The drawback of this method is that weights may become outdated, especially when there are large differences in the growth rates of GDP across countries, which may lead to different sets of weights over time. With chained indices, weights are progressively adjusted and consequently more up to date.

3. This is, for example, followed the approach in a database constructed for analytical work at OECD. See OECD (2001); *A Complete and Consistent Macro-Economic Data Set of the Euro Area, Methodological Issues and Results*; Paris. (<http://www.oecd.org/eeco/data/euroset.htm>).

4. This option applies, for example, in the context of the *OECD Quarterly National Accounts*.

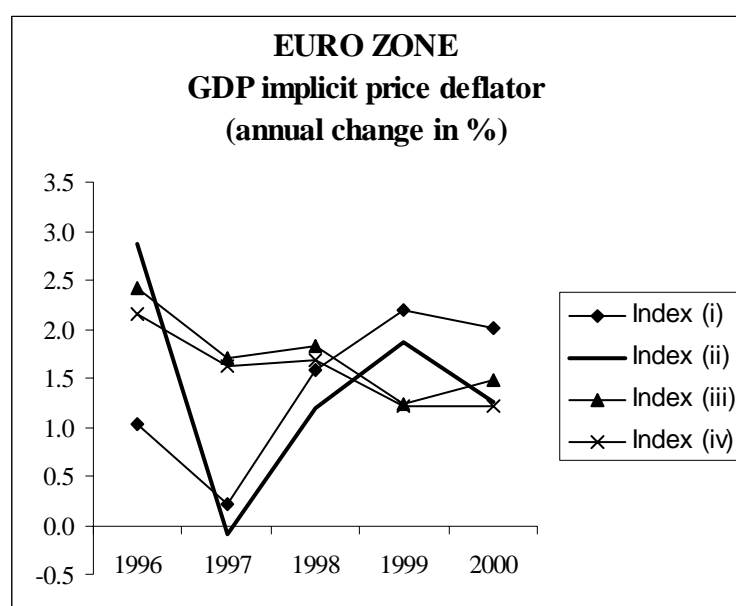
There is no universally best way of comparing between periods although a significant body of literature has examined the properties of chained and direct comparisons and provided insight as to when one or the other is more appropriate. Generally, chained price or volume indices are recommended when there is an inverse relationship between prices and quantities¹.

Example: Implicit deflator for the Euro area

To illustrate differences in results, consider the figure below. It presents four different series of implicit deflators of Euro area GDP:

- (i) based on current international prices (value index of GDP at current international prices over volume index at 1995 international prices);
- (ii) based on current exchange rates (value index of GDP at current exchange rates over volume index at 1995 exchange rates);
- (iii) based on constant international prices (value index of GDP at 1995 international prices over volume index at 1995 international prices);
- (iv) based on exchange rates of period $t-1$ (value index of GDP at exchange rates of period $t-1$ over volume index at exchange rates of period $t-1$).

Indices (i) and (ii) reflect both domestic inflation *and* exchange rate shifts or shifts in PPPs. Indices (iii) and (iv) are weighted averages of domestic rates of inflation only. The latter differ in the way weights enter the calculation. It is apparent that results (i) and (ii) are quite different from options (iii) and (iv). While a rationale exists for each series, there is value, from a user perspective, in reducing the number of available Euro area data. To this end, OECD is reviewing its aggregation procedures, both for the Euro area - which presents a case of special interest - but also for other zone totals such as OECD Europe or total OECD.



Reference currency. The choice of the international (reference) currency has consequences for the resulting zone aggregates. At OECD, the USD has traditionally provided the reference currency. This may lead to aggregation outcomes - including for the euro area - that are different from those presented by European institutions, in particular *Eurostat* and the *European Central Bank* who use the euro (post 1999) and the ECU (prior to 1999) as their reference currency.

PPPs and exchange rates. A conversion of national data into a common currency can be carried out using purchasing power parities or exchange rates, independent of whether the conversion rate is held fixed or not over time. There are two issues:

- First, whereas the bilateral exchange rates for countries in the euro area have been irrevocably fixed, PPPs have not and will continue to be calculated. Although convergence of relative price levels may be expected in a currency area, this process may be slow and may never fully materialise, just as there are persistent differences of price levels within countries. Computationally, then, the introduction of the EUR in 1999 has no impact on the construction of zone totals, if PPPs are applied for purposes of aggregation. Conceptually, however, an issue arises when the euro area is considered a single entity or 'country'. In this case, continuing usage of PPPs for different parts of the euro area country is tantamount to introducing regional PPPs for other single countries (such as the United States). Implicitly, this means treating the euro area country and other OECD countries asymmetrically.
- Second, even when there is no single country issue, and in the case of forming simple zone aggregates, when should PPPs be used rather than exchange rates to convert national currencies into a common international base? PPPs reflect relative price levels of a bundle of goods and services, selected to be representative of private consumption, investment or of GDP as a whole. Exchange rates reflect the price of a currency on international markets. Their development is driven by supply and demand for a currency, themselves dependent on factors like trade flows, capital movements and interest rate differentials. Although there is a long-term link between PPPs and exchange rates, nothing guarantees parallel movements in the short run. No fixed rule exists when to choose PPPs or exchange rates but some basic considerations should be taken into account, including the economic contents and use of the data, the degree of volatility of different series, and the availability and reliability of PPPs.

Aggregation across countries: conclusions and recommendation of the Task Force

1. There is no single ‘best’ solution to aggregate value data to area aggregates. In particular, whether or not these aggregates should be based on current exchange rates (or PPPs) or on constant exchange rates (or PPPs) depends on the variable under consideration. For example, exchange rate shifts should be excluded from aggregate measures of *domestic* inflation, but may well be included for aggregate measures of export or import price changes.
2. Even though there may be no unique solution, OECD will undertake further steps to reduce the number of similar series and to be as specific as possible when providing data relative to the Eurozone to users. One particular objective will be to establish, in co-ordination with the ECB and Eurostat, and in response to analytical requirements, a set of national accounts for the Euro area, thereby treating it as one country⁵. Such a treatment would, for example, imply the elimination of exchange rate effects on deflators. It would also imply dealing with empirically difficult issues such as measuring trade flows net of intro-Euro area trade.
3. Where possible, weights should be based on the variable concerned. For example, weights used to aggregate indices of private consumption expenditure should reflect individual countries’ shares in total consumption expenditure rather than in overall GDP or population.
4. When there is a plausible economic relationship between the component variable whose development is aggregated across countries and the weights, moving weights should be applied so as to keep an updated set of weights. For example, it can be argued that there is a direct relationship between exchange rates and domestic rates of inflation so that updated weights can be useful when inflation aggregates are formed.
5. Aggregation of volume or constant price data should be based on constant exchange rates or constant international prices (PPPs). There is little, if no, economic meaning to volume aggregates that are based on constant-price national data converted by way of current exchange rates or current PPPs.
6. Even though no *one-fits-all method* for aggregation is put forward here, consistency should be sought regarding terminology. The table in the Appendix suggests headings and labels to be used for different types of area aggregates.
7. Conceptually, the terms ‘euro area’ and ‘euro zone’ are considered synonyms. However, for reasons of uniformity of presentation, it is recommended that the label ‘euro area’ be used in statistical databases and publications.

5. This objective was not established by the Task Force itself but arose from more recent follow-up discussions.

APPENDIX: A SMALL GLOSSARY

<i>Terminology</i>	<i>Definition</i>
Area	Group of countries; synonym for 'zone'
Constant national prices, reference year t_0	<p>Level series obtained by applying a volume or quantity index (or its growth rates) to the level of a series in current national prices of period t_0</p> <p><i>Comment:</i> the underlying volume index may or may not be based on fixed prices of period t_0. In many countries, volume indices are now chained indices, based for example on prices of the year $t-1$. This explains the label 'constant prices, reference year t_0' instead of the traditional 'constant t_0 prices'. In the United States, where volume indices are based on an averages of prices of the years t and $t-1$, the resulting level series are labelled 'chained t_0 dollars'.</p>
Current national prices	Levels series of values expressed in national currency and at current prices
Exchange rates	Price relatives of different currencies
Implicit price index	Price index derived as the ratio of a value over a volume index.
Implicit price index based on current exchange rates (or current international prices).	<p>Aggregate price index derived as the ratio of a value index at current exchange rates (or current international prices) over a volume index at constant exchange rates (or constant international prices) of period t_0.</p> <p><i>Comment:</i> When this price index is exchange-rate based, it reflects the shifts in exchange rates and devaluation or appreciation of individual currencies can influence the price aggregate even if domestic prices are unchanged. When the price index is PPP-based, it reflects domestic inflation of the reference country or average inflation of the reference countries</p>
Implicit price index based on constant exchange rates (or constant international prices) of period t_0	<p>Aggregate price index derived as the ratio of a value index at constant exchange rates (or constant international prices) of period t_0 over a volume index at constant exchange rates (or constant international prices) of period t_0.</p> <p><i>Comment:</i> This price index is suitable for statements about <i>domestic</i> price developments in a geographical zone. But note that in cases where the geographical zone comprises some, or even only one, high inflation country, the large domestic price changes in this economy are fully reflected in this price index and may dominate the measure to the point of rendering it meaningless</p>

Implicit price index based on constant exchange rates (or constant international prices) of period $t-1$	Aggregate price index derived as the ratio of a value index at constant exchange rates (or constant international prices) of period $t-1$ over a volume index at constant exchange rates (or constant international prices) of period $t-1$.
International prices	A series expressed in international prices is one converted to a reference currency by way of applying PPPs.
Purchasing power parities	Price relatives of goods and services in different countries or regions.
Values at current international prices; (at current PPPs)	Series at current domestic prices converted to a common currency by way of current PPPs. Because PPPs are price relatives of goods and services, this implies substituting the set of domestic prices by a set of international prices.
Values at current exchange rates, (at current USD)	Series at current domestic prices converted to a common currency by way of current exchange rates. Because exchange rates are price relatives of currencies, this expresses domestic values in terms of a foreign currency.
Values at constant international prices of period t_0 ; (at PPPs of period t_0)	Series at current domestic prices converted to a common currency by way of constant PPPs of a given year. <i>Comment:</i> a value index of this kind corresponds to a weighted average of the value changes in domestic prices, as PPPs are held fixed.
Values at constant exchange rates of period t_0	Series at current domestic prices converted to a common currency by way of constant exchange rates of period t_0 . <i>Comment:</i> a value index of this kind corresponds to a weighted average of the value changes in domestic prices, as exchange rates are held fixed.
Values at constant international prices of period $t-1$; (at PPPs of period $t-1$)	Series at current domestic prices converted to a common currency by way of PPPs of year $t-1$. <i>Comment:</i> a value index of this kind corresponds to a weighted average of the value changes in domestic prices, as PPPs are held fixed at their previous year's value. However, weights are continuously updated.
Values at constant exchange rates of period $t-1$	Series at current domestic prices converted to a common currency by way of constant exchange rates of period $t-1$. <i>Comment:</i> a value index of this kind corresponds to a weighted average of the value changes in domestic prices, as exchange rates are held fixed at their previous year's value. However, weights are continuously updated.
Volumes at constant international prices of period t_0 ; (at PPPs of period t_0)	Series at constant domestic prices (reference year t_0) converted to a common currency by way of constant PPPs of period t_0 . <i>Comment:</i> when expressed as a volume index, this corresponds to a weighted average of the volume index of each country in the area with

	weights based on PPPs of period t_0 .
Volumes at constant exchange rates of period t_0 ;	Series at constant domestic prices (reference year t_0) converted to a common currency by way of constant exchange rates of period t_0 . <i>Comment:</i> when expressed as a volume index, this corresponds to a weighted average of the volume index of each country in the area with weights based on exchange rates of period t_0 .
Volumes at constant international prices of period $t-1$; (at PPPs of period $t-1$)	Series at constant domestic prices (reference year $t-1$) converted to a common currency by way of constant PPPs of period $t-1$. <i>Comment:</i> when expressed as a volume index, this corresponds to a weighted average of the volume index of each country in the area with weights based on PPPs of period $t-1$. Thus, PPP-based weights are periodically updated.
Volumes at constant exchange rates of period $t-1$	Series at constant domestic prices (reference year $t-1$) converted to a common currency by way of constant exchange rates of period $t-1$. <i>Comment:</i> when expressed as a volume index, this corresponds to a weighted average of the volume index of each country in the area with weights based on exchange rates of period $t-1$. Thus, exchange rate based weights are periodically updated.
Zone	Group of countries; synonym for 'area'

1 See, for example, the discussion in the System of National Accounts 1993, paragraphs 16.41 ff.